FAYNBERG, E.Z.

Study of structure of synthetic polyamide fibers. III. Differential heat of sorption of water by capron fibers. N. V. Mikhailov and E. Z. Fainberg. *Kolloid. Zhur.* 16, [illegible] (1954); cf. *C.A.* 48, [illegible]. Aged polycaprolactam (I) was allowed to sorb c % H_2O, and then its heat (Q) of wetting by H_2O was detd. The Q decreased from [illegible] when c increased from 0 to 6 [illegible] 2 distinct const. values, for oriented fibers [illegible] at c < 1.5% and 0.4 at c [illegible] 1.5%, while for unoriented [illegible] fibers it was 1.6 and 0.7 below and above c = [illegible]. Presumably, at smaller c, H_2O was sorbed by intramol. and at greater c, by intermol. H bonds. Orientation of the fibers was assocd. with transformation of some intramol. into intermol. bonds. J. J. Bikerman

FAYNBERG, E. L.

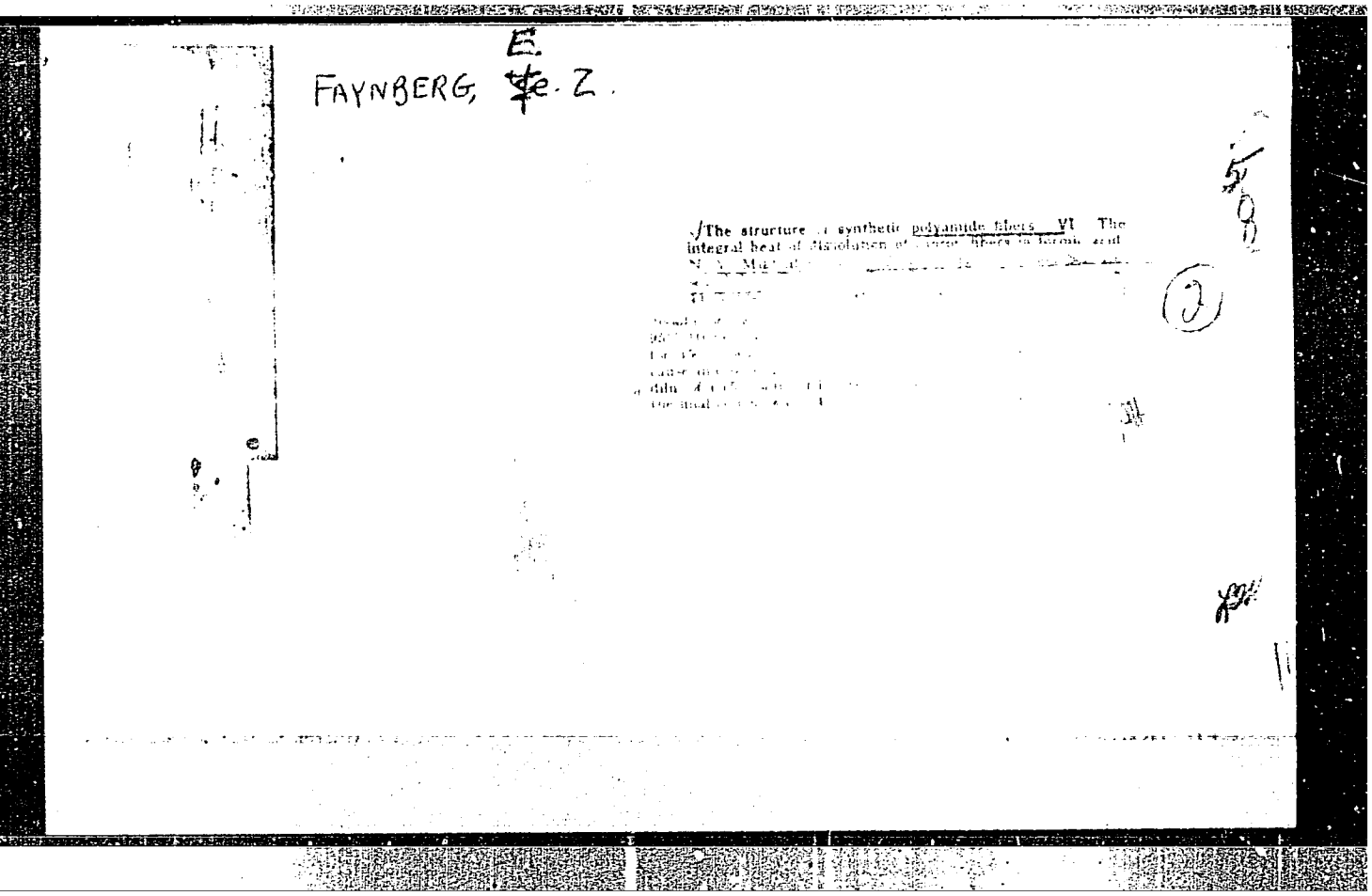
USSR.

Structure of synthetic polyamide fibers. III. Differential heat of sorption of water by capron fibers. N. V. Mikhailov and R. Z. Faĭnberg. *Collod. J. U.S.S.R.* 16, 129-32(1954) (Engl. translation).—See *C.A.* 48, 8638g. H. L. H.

FAYNBERG, E. Z.

FAYNBERG, E. Z.: "A study of the molecular structure of synthetic polyamide fibers based on the thermal effects of wetting and dissolution." Min Chemical Industry USSR. Order of Labor Red Banner Sci Res Physicochemical Inst imeni L. Ya. Karpov. Moscow, 1956. (Dissertation for the Degree of Candidate in Chemical Sciences).

SO: Knizhaya Letopis', No 23, 1956



FAYNBERG, E. Ye. Z.

√The structure of synthetic polyamide fibers. VI. The integral heat of dissolution of [illegible] fibers in formic acid

FAYNBERG, E.Z.

USSR/ Chemistry of High-Molecular Substances F.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11919

Author : Mikhaylov N.V., Faynberg E.Z.
Title : Investigation of Structure of Synthetic Polyamide Fibers. 7. Differential Heat of Dissolution of Capronic Fiber in Formic Acid

Orig Pub : Kolloid. zh., 1956, 18, No 2, 208-214

Abstract : Determined were the values of differential hăt (DH) of dissolution of oriented and unoriented capronic fibers in formic acid, which are analogous to DH of water sorption (see Communication 6, RZhKhim, 1957, 8274) in this that they have two constant values. The same as in the case of sorption, on dissolution, there corresponds to a zero heat effect the same molar portion of water and formic acid, per 1 mole caprolactam. Difference in values of DH of oriented and unoriented fibers is interpreted on the basis of concepts of the existence in polycaprolactam of at least two types of hydrogen bonds, one of which relates to intramolecular bonds which are concerted, in

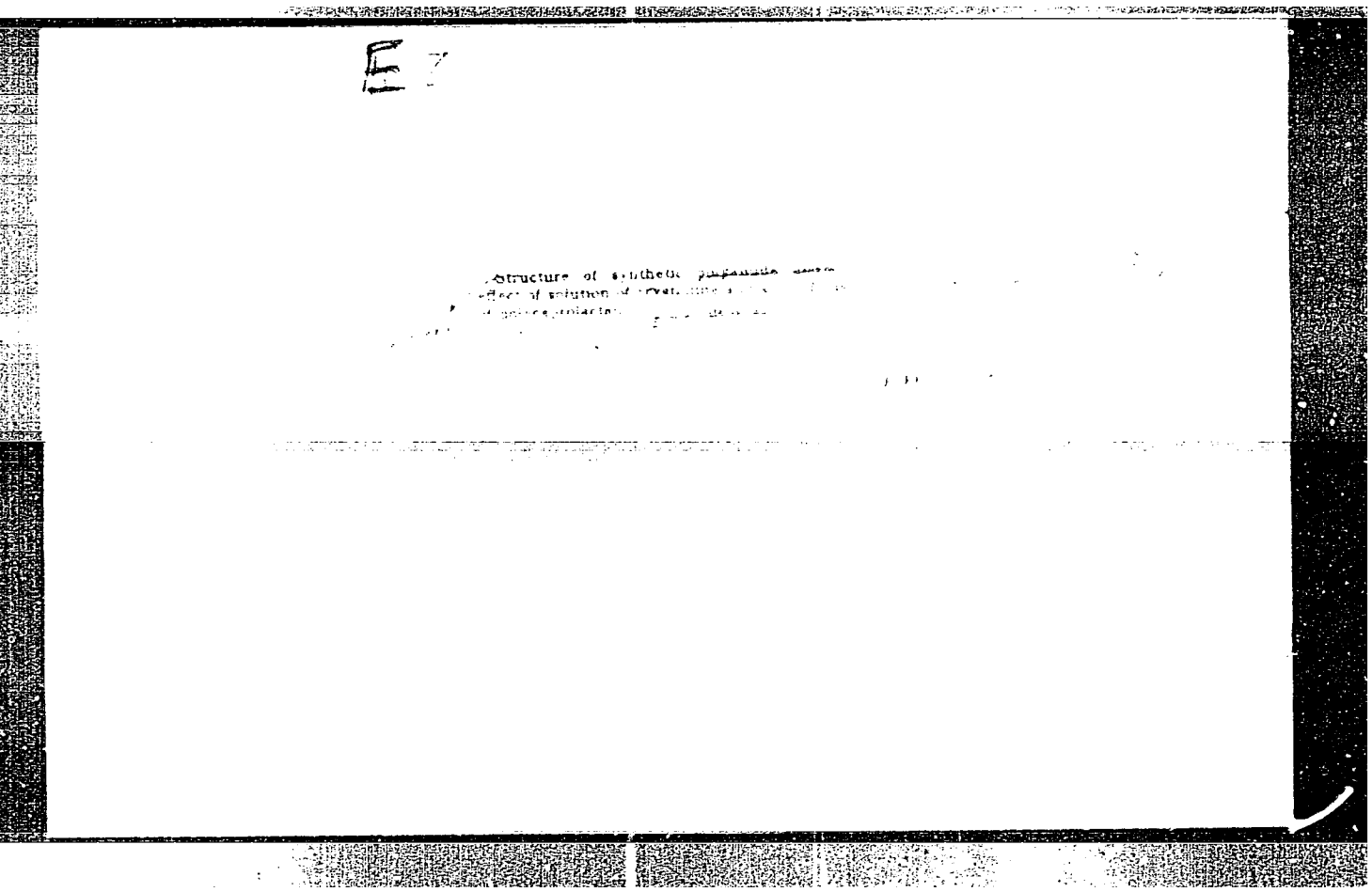
Card 1/2

USSR/ Chemistry of High-Molecular Substances F.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11919

the process of cold stretching of the fiber, to intermolecular bonds. On the basis of the fact that on stretching the number of bonds corresponding to the higher value of DH of dissolution, decrease almost to one-fifth (from 8.82% of sorbed acid to 1.74%), the authors reach the conclusion that during the process of stretching, stronger bonds are formed. Weaker bonds must be the intramolecular; hence the authors draw the conclusion that the process of cold stretching of fiber takes place by opening of intramolecular rings, formed by these bonds, and by formation of stronger intermolecular bonds which determine the crystalline structure of polycaprolactam. The authors consider that since on stretching no changes occur in the phase state of the fiber, it follows that physicomechanical properties of the fiber are determined only by the ratio of the different types of bonds.

Card 2/2



E 7

Structure of synthetic

effect of solution

E

MIKHAYLOV, N.V.; FAYNBERG, Ya.Z.

Phase state of cellulose in oriented fibres. Dokl. AN SSSR 109 no.6: 1160-1162 Ag '56. (MLRA 9:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna. Predstavlena akademikom V. A. Kargin.
(Cellulose)

FAYNBERG, E. Z., MIKHAYLOV, N. V., GARBACHEVA, V. N., TAPCHITASHEVA, V. N., and SHLYN, T...

"Thermodynamic studies of the molecular structure of synthetic polyamides," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Fiber Research Inst.

B-3,084,395

E 2

FAYNBERG, E.Z.; GORBACHEVA, V.O.; MIKHAYLOV, N.V.

Investigating the molecular structure of synthetic fibers. Report No.13: Polyenanthamide. Vysokom.soed. 1 no.1:17-20 Ja '59. (MIRA 12:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Textile fibers, Synthetic) (Hepthanamide)

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; GORBACHEVA, V.O.

Study of the molecular structure of stereoregular polymers. Isotatic polypropylene. Vysokom.soed. 1 no.1:143-148 Ja '59. (MIRA 12:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Polymers) (Propene)

MIKHAYLOV, N.V.; FAYNBERG, E.Z.

Study of the molecular structure of synthetic fibers. Part 15: Thermochemical properties of the polycapramide - polyundecanamide polyamide group. Vysokom.soed. 1 no.2:201-297 F '59. (MIRA 12:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Textile fibers, Synthetic) (Amides)

MIKHAYLOV, N.V.; TOKAREVA, L.G.; FAYNBERG, E.Z.

Compatibility and mechanism of the stabilization of mixtures of fiber-forming polymers. Vysokom. soed. 1 no.3:404-409 Mr '59. (MIRA 12:10)

1. Nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Polymers)

MIKHAYLOV, N.V.; FAYNBERG, E.Z.

Molecular structure of synthetic fibers. Part 16: Sorption of water vapors and heat effects of the wetting of enanthic fibers with water. Vysokom. soed. 1 no.3:410-414 Mr '59. (MIRA 12:10)

1. Nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Heptanamide)

KOZLER, M.; FAYNBERG, E.Z.; MIKHAYLOV, N.V.

Measurement of the density of polymers by the electromagnetic float method. Vysokom. soed. 2 no. 3:444-450 Mr '60. (MIRA 13:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna i Institut khimicheskikh volokon, Chekhoslovakiya. (Polymers)

MIKHAYLOV, N.V.; KLYUYEVA, O.A.; GORBACHEVA, V.O.; FAYNBERG, E.Z.

Elucidation of the relation between the structure and orientation of the molecular chains in polyethylene terephthalate. Vysokom.soed. 2 no.6:942-946 Je '60. (MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Terephthalic acid) (Polyethylene)

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; KOZLER, M.

Fine molecular structure of oriented fibers of regenerated cellulose. Vysokom.soed. 2 no.7:1031-1038 Jl '60.
(MIRA 13:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna i Institut khimicheskikh volokon Chekhoslovakii.
(Cellulose)

FAYNBERG, E.Z.; MIKHAYLOV, N.V.

Study of the kinetics of polycondensation at the interface by means of electric conductivity measurements. Vysokom.soed. 2 no.7:1039-1044 Jl '60. (MIRA 13:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Polymerization)

S/190/60/002/007/007/017
B020/B052

AUTHORS: Faynberg, E. Z., Mikhaylov, N. V.

TITLE: Investigation of the Reaction Kinetics of Interfacial Polycondensation by Measurement of the Electrical Conductivity

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 7, pp. 1039-1044

TEXT: The authors attempted to investigate the kinetics of interfacial polycondensation in dependence on the working conditions. However, they found that the conventional methods of studying polycondensation were impossible in this case. The criterion of the reaction rate chosen, was the concentration change of diamine found by measurement of the electrical conductivity of the aqueous diamine phase at an arbitrary moment of the reaction course. The present paper describes the development of a method of measuring the electrical conductivity, which guarantees comparable results for different systems. Benzene adipic acid-, and sebacic acid dichloride solutions, and aqueous hexamethylene diamine solutions were used. Quaternary ammonium bases of the triethyl-benzyl ammonium hydroxide type

were used as detergents. The reaction course was investigated in dependence on the concentrations of acid chloride, diamine, and detergents. It was sufficient to know the concentration of diamine. Fig. 1 shows the vessel used for measuring the electrical conductivity. The lower part of the vessel has a hollow for the magnetic mixer. In the first experimental stages, measuring was carried out with a vacuum-tube voltmeter. The measuring scheme is described in Fig. 2; the voltage measuring accuracy was 0.2 mv. The dependence of the potential change read on the millivoltmeter, on the amount of the water added, was linear. This allowed the determination of the amount of diamine reacting at any time. Later, an electronic bridge (Scheme in Fig. 3) was used instead of the vacuum-tube voltmeter, by which the measuring accuracy was increased, and the measuring results could be automatically recorded. Fig. 4 shows the change of resistivity of the bridge as a function of the time of reaction, and Fig. 5 gives the change of the initial concentration of the aqueous hexamethylene diamine solution as a function of the time of reaction. The authors thank V. A. Gorbunov for his assistance in developing the method for the measurement of the electrical conductivity. Ye. P. Sanugol'tseva also cooperated.

Investigation of the Reaction Kinetics of Interfacial Polycondensation by Measurement of the Electrical Conductivity

S/190/60/002/007/007/017
B020/B052

There are 5 figures and 2 references: 1 Soviet and 1 US.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

SUBMITTED: March 10, 1960

Card 3/3

26299
S/190/61/003/008/012/019
B110/B218

15.5550

AUTHORS: Faynberg, E. Z., Mikhaylov, N. V.

TITLE: Thermochemical criterion of plasticized drawing

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 8, 1961, 1234-1237

TEXT: The Lavsan fiber obtained from polyethylene terephthalate cannot be cold-drawn due to high intramolecular interaction. To avoid the drawbacks of drawing above vitrification temperature (80°C), the authors tried to reduce th. intramolecular interaction by adding a plasticizer. In this, the thermal effects of interaction were measured by means of an adiabatic column. Results are given in the Table. The experiments showed that equilibrium was established within 20-30 min, and that the major part of heat was liberated at the beginning of interaction. Based on their experimental data, the authors stated the following: (1) Cold-drawing is only possible with such plasticizers as exhibit a thermal effect of interaction with the fiber which considerably differs from zero; (2) maximum drawing of the fiber will be brought about with a concentration

Thermochemical criterion of ...

of the plasticizer which exerts a thermal effect of interaction that is close to or even equal to zero; (3) this rule is supposed to hold also for other fibers obtained from polar polymers, which have a high vitrification temperature. There are 1 table and 6 references: 5 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: Ref. 4: B. F. Boyer, R. S. Spenser, J. Polymer Sci., 2, 157, 1947.

ASSOCIATION: Nauchno-issledovatel'skiy institut iskusstvennogo volokna (Scientific Research Institute of Synthetic Fibers)

SUBMITTED: December 1, 1960

Table. Thermal effects of interaction of different reagents with Lavsan. Legend: (1) Test number; (2) reagent; (3) concentration of the reagent, %; (4) duration of action of the reagent, min; (5) capability of being cold-drawn; (6) notes; (7) dimethylformamide; (8) ditto; (9) ethanolamine; (10) aniline; (11) dioxane; (12) urea; (13) hydrochloric guanidine; (14) ethyl alcohol; (15) glycol; (16) glycerin; (17) acetone; (18) solution saturated

MIKHAYLOV, N.V.; FAYNBERG, E.Z.

Discussion on cellulose phases. Vysokom.soed. 3 no.9:1430-1432 S '61. (MIRA 14:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Cellulose)

MIKHAYLOV, N.V.; FAYNBERG, E.Z.

Heat capacity and phase state of cellulose fibers of various structure. Vysokom.soed. 4 no.2:230-236 F '62. (MIRA 15:4)

1. Nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Hydrocellulose--Thermal properties)

S/190/62/004/002/011/021
B110/B101

AUTHORS: Mikhaylov, N. V., Faynberg, E. Z., Gorbacheva, V. O., Ch'eng Ch'ing-hai

TITLE: Compatibility of the system polyethylene - polypropylene

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1962, 237 - 241

TEXT: A method of combining polyhydrocarbons from their solutions has been developed. A mixture of low-density polyethylene (PE) and isotactic polypropylene (PP) was produced via o-xylene or white spirit or melt with different PE : PP ratios. Dissolution took 40 - 50 min at t = 160 - 165°C (total concentration = 0.1; 0.5; 5%). The precipitate formed by cooling to 80 - 85°C was eluted with acetone to remove the solvent. The physico-chemical properties of polymer mixtures were studied by (a) differential thermal analysis; (b) thermochemically; (c) density measurement. The endothermic effects of the heating curves for pure polymers and copolymers correspond to the temperature range of melting. The two endothermic effects of the curves for polymer mixtures correspond to the temperature range of

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Compatibility of the system...

the transition of pure polymers, and only for mixtures 7.5 : 2.5; 8 : 2; 9 : 1; 9.5 : 0.5; and 9.8 : 0.2, they showed only one endothermic effect, like the curves for the initial polymers. The concentration range of compatibility is limited; concentration decrease of PE and increase of PP effect demixing. Since the temperature range of melting of copolymers only differs by 15 - 18°C from that of pure PE, the difference should be even smaller for combined mixtures. This also agrees with Flory's idea on the decrease of the melting point when plasticizing one polymer by another (low- or high-molecular). Comparisons of the heat capacity with the values of the copolymer are used as a criterion for the degree of combination of polymer mixtures. The heat capacities of pure homopolymers are close to each other, and strongly differ from those of copolymers. The polymer mixture 8 : 2 has maximum heat capacity and optimum compatibility. Minimum density (0.915) of the copolymer corresponds to maximum heat capacity (0.500). The copolymer has a lower than the additive density, and thus a molecular packing of lower density. The density of all combined mixtures is lower than the additive value. The mixture 7.5 : 2.5 shows maximum deviation. This proves a plasticizing effect of PE on PP owing to higher flexibility of the polymer chains of PE. This effects a decrease in stiffness of PP, and facilitates its compatibility with PE. There are

Compatibility of the system...

3 figures, 2 tables, and 3 references: 2 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: R. Kee, J. Polymer Sci., 42, 15, 1960.

ASSOCIATION: Nauchno-issledovatel'skiy institut iskusstvennogo volokna (Scientific Research Institute of Synthetic Fibers)

SUBMITTED: February 9, 1961

Card 3/3

S/190/62/004/003/022/023
B143/B101

11 2310
15.8061

AUTHORS: Fayngar', E. E., Tomareva, M. G., Skuratov, S. M., Likhaylov, N. V.

TITLE: Combustion heats of polypropylene of different structure

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 3, 1962, 463 - 467

TEXT: The combustion heats of isotactic polypropylene and of the fractions obtained therefrom by extraction with ether and heptane were measured to repair the lack of experimental data permitting a comparatory estimate of intermolecular interaction energy in the chains of isotactic and atactic polymers. Respective data of the two different samples (I and II) served as test material: Viscosimetric molecular weight: 80,000 and 180,000; ether fraction content: 11.5 and 4.5%; heptane fraction content: 11.5 and 4.5%; isotactic crystalline polypropylene: 77 and 91%; ash content: 0.01 - 0.02%. $TiCl_3 + Al(Et)_3$ was the catalyst in polymerization. Combustion took place in a self-packing steel bomb (design by the MGU thermomechanical laboratory). Initial oxygen pressure

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Combustion heats of...

was 30 atm. The temperature measurement (method described in Uch. zapiski MGU, no. 164, 73, 1953) was accurate within 0.02 - 0.03°. Mean values of combustion heats (cal/g, reduced to 25°C) measured in I for initial sample, ether fraction, heptene fraction, and residue from extraction (isotactic crystalline portion) are as follows: 11067 ± 1.2, 11055.8±1.5, 11079.3±2.1, and 11068.1 ±2.2, respectively. In II: 11056 ± 2.3, 11050.4 ± 2.2, 11064 ± 1.4, and 11056.3 ± 1.4, respectively. The slight decrease of combustion heat in the ether fraction, and the increase in the heptane fraction compared with the value for the initial sample cannot be explained by assuming that the solvent is incompletely removed from the samples. The difference in the combustion heat values is as yet difficult to explain. The values of the ether fraction and isotactic portion show that isotactic polymer is chiefly formed by stereospecific synthesis in the presence of $TiCl_3 + Al(Et)_3$, whereas atactic polymer is chiefly formed in the presence of $TiCl_4 + Al(Et)_3$ as the catalyst (as previous experiments have proved). The difference between results for I and II is due to the different degree of structural regularity in the two samples. The combustion heats of rapidly and

Card 2/3

slowly cooled samples (initial polymer and pure isotactic polymer) are equal. There are 2 tables. The most important English-language reference is: G. Natta, J. Polymer Sci., 16, 143, 1955; G. Natta, P. Pino, P. Corradini, F. Danusso, E. Mantica, G. Mazzanti, G. Moraglio, J. Amer. Chem. Soc., 77, 1708, 1955.

ASSOCIATION: Nauchno-issledovatel'skiy institut iskusstvennogo volokna (Scientific Research Institute of Synthetic Fibers)

SUBMITTED: March 15, 1961

L 13519-63 EWP(j)/EWT(m)/BDS/ES(v) AFFTC/ASD Pc-4/Pe-4 RM

ACCESSION NR: AP3001151 S/0190/63/005/006/0826/0830

AUTHOR: Nikolayeva, S. S.; Faynberg, E. Z.; Mikhaylov, N. V.

TITLE: Structural characteristics of polyamides obtained by the interfacial polycondensation method

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 5, no. 6, 1963, 826-830

TOPIC TAGS: polyamide, interfacial polycondensation, structural characteristic, nylon fiber, polyamide, density value

ABSTRACT: The inferior physico-chemical properties of nylon fibers synthesized by the interfacial polycondensation method, as compared with those obtained by the classical melt procedure, induced the authors to conduct this study. They investigated nylon 6-6 (polyhexamethyleneadipinamide) and nylon 6-10 (polyhexamethylenesebcamide), with emphasis on the role played by the fiber's density. The fibers were plasticized by immersion in water or in 5% formic acid, and their density was measured at certain intervals until an equilibrium state was established. It took nylon 6-6 nearly 33 days in water and 4 days in formic acid to reach densities of 0.9379 and 1.0200 respectively, the equilibrium densities for nylon 6-10 in water and formic acid being 1.0746 and 1.1889, reached within 14 and 2 days. The

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ACCESSION NR: AP3001151

stretching of the plasticized fibers at equilibrium was conducted at 175C either on a heated surface or in the plasticising medium. These, as well as x-ray studies, lead to the conclusion that the low density of the 6-6 and 6-10 nylons was due to their being in a state of nonequilibrium caused by the conditions of interfacial polycondensation. Orig. art. has: 3 tables.

ASSOCIATION: Vsesoyuznly nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific-Research Institute of Synthetic Fiber)

SUBMITTED: 14Nov61 DATE ACQ: 01Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 009 OTHER: 003

Card 2/2

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; SEMENOVSKAYA, L.A.

Study of the structure of cellulose hydrate fibers by the method of sorption of quaternary ammonium bases from aqueous solutions. Vysokom. soed. 6 no.3:522-526 Mr'64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut iskustvennogo volokna.

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; NEMCHENKO, E.A.; DENISENKO, N.V.

Study of the fine molecular structure of cellulose hydrate fibers by the determination of shear modulus. Vysokom. soed. 6 no.3:527-533 Mr'64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut iskusstvennogo volokna.

EYFER, I.Z.; FAYNBERG, E.Z.; MIKHAYLOV, N.V.

Effect of the orientation of molecular chains on the dielectric anisotropy of fibers. Khim. volok. no.2:48-50 '65.
(MIRA 18:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

NEMCHENKO, E.A.; FAYNBERG, E.Z.; SEREBRYAKOVA, Z.G.; ZABRAN, F.S.; YELCHINA, N.V.

Comparative evaluation of avivage preparations by the data of the measurement of the modulus of shearing. Khim. volok. no.4:62-64 '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

L 40810-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EWP(j)/EEC(t)/T Pc-4/Pr-4/Pt-10/
P1-4 IJP(c) GG/RM
ACCESSION NR: AP5008364 S/0190/65/007/003/0411/0416

65
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B

AUTHORS: Mikhaylov, N. V.; Faynberg, E. Z.; Eyfer, I. Z.

TITLE: A method of determining orientation of polymer materials by the dielectric constant

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 3, 1965, 411-416

TOPIC TAGS: dielectric constant, polymer, orientation, anisotropy, polypropylene, polytetrafluoroethylene, polyethylene terephthalate

ABSTRACT: The authors have developed a method for determining the orientation of molecular chains in polymeric material, such as fibers, by measuring the dielectric constant. This technique assumes that the material is electrically anisotropic. This anisotropy may be represented by the index $n = E_{aa}/E_{rr}$, where E_{aa} is the dielectric constant in the axial direction, E_{rr} in the radial direction. Direct measurements of E_{rr} with satisfactory precision may be made, but accurate determinations of E_{aa} are difficult. It is possible, however, to do this indirectly by taking two readings at different angles and by solving rather simple

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ACCESSION NR: AP5008364

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equations. The authors describe a device designed to permit measurement at different angles relative to the fiber axis. The advantage of this technique, as contrasted with the optical method, is that measurements may be made at wavelengths where the phase state and morphology of the fibers have no appreciable effect on the anisotropy. The authors examined stretched and unstretched fibers of different chemical composition: polyethylene terephthalate, polypropylene, polytetrafluoroethylene, and nitron. The results proved that the technique is suitable for determining orientation. Reproducibility proved to be high. Actual measured and computed values are given in a table in the article. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

SUBMITTED: 29Apr64 ENCL: 00 SUB CODE: MT, EM

NO REF SOV: 004 OTHER: 003

Card 2/2

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; SEMENOVSKAYA, L.A.

Structure of cellulose hydrate fibers from data of the sorption of bases from the liquid phase. Vysokom. soed. 7 no.11:1950-1955 N '65. (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna. Submitted December 25, 1964.

FAYNBERG, F.S.

Synthetic film covers and their use in hotbeds. Politekh.obuch. no.3:55-62 Mr '59. (MIRA 12:4)

1. Nauchno-issledovatel'skiy institut ovoshchnogo khozyaystva.
(Hotbeds) (Synthetic products)

FAYNBERG, F.S.; DASHKEVICH, N.N.

Residual magnetism in traps of the lower Angara Valley. Geol. i geofiz. no.6:116-122 '60. (MIRA 13:9)

1. Krasnoyarskoye geologicheskoye upravleniye.
(Angara Valley--Rocks--Magnetic properties)

FAYNBERG, F.S.

Magnetism and chemical composition of trap rocks in the southern Siberian Platform. Geol. i geofiz. no. 9:81-92 '60. (MIRA 14:2)

1. Krasnoyarskoye geologicheskoye upravleniye.
(Siberian Platform--Rocks, Igneous--Magnetic properties)

FAYNBERG, F.S.; SEMENOV, A.S.

Changes in the mineral composition and magnetic susceptibility of iron-bearing rocks and ores due to the effect of temperature. Uch. zap. LGU no.286:99-106 '60. (MIRA 14:3)
(Thermomagnetism)
(Rocks, Magnetic properties)

FAYNBERG, F.S.

Anomalous magnetism of traps in the lower course of the Chuna River. Uch. zap. LGU no.286:107-109 '60. (MIRA 14:3)
(Chuna Valley—Rocks, Magnetic properties)

METALLOVA, V.V.; ZOLOTOV, I.G.; FAYNBERG, F.S.

Results of studies of the magnetic properties of trap rocks from the southern Siberian Platform. Uch.zap.LGU no.303:38-48 '62. (MIRA 15:11)

(Siberian Platform--Rocks--Magnetic properties)

METALLOVA, V.V.; FAYNBERG, F.S.

Study of the magnetic properties of trap rocks in the southern part of the Siberian Platform. Vest. LGU 18 no.18:46-52 '63. (MIRA 16:11)

BOGATSKIY, V.V., otv. red.; GOR'KIY, Yu.I., red.; DOBROVOL'SKIY, M.N., red.; KOROPETS, I.P., red.; KURTSERAYTE, Sh.D., red.; PEL'TEK, Ye.I., red.; FAYNBERG, F.S., red.; KHAZAGAROV, A.M., red.; SHESTAKOV, Yu.G., red.; LIFSHITS, L., red.

[Geology and geochemistry of the mineral resources of Krasnoyarsk Territory] Geologiia i geokhimiia poleznykh iskopaemykh Krasnoiarskogo kraia; sbornik statei. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1964. 197 p. (MIRA 18:9)

1. Krasnoyarskaya kompleksnaya ekspeditsiya.

FAYNBERG, G.M., KHURGIN, A.M., metodist

Health education at the October Revolution Plant. Med.sestra 17 no.9:39-40 S'58 (MIRA 11:10)

1. Glavnyy vrach Luganskogo oblastnogo doma sanitarnogo prosveshcheniya (for Faynberg).
(HEALTH EDUCATION)
(INDUSTRIAL HYGIENE)

L 40[illegible]-66 EWT(l)/EWP(e)/EWT(m)/EEC(k)-2/EWP(v)/T-2-P(t),ETI/E-P(k) IJP(c) WW/WG/

ACC NR: AP6023366 JH/JD/HW SOURCE CODE: UR/0237/66/000/007/0011/0012

AUTHOR: Taganov, K. I.; Faynberg, L. M.

ORG: none

TITLE: Determination of coating thickness from flash spectra resulting from the interaction of a laser with a substance

SOURCE: Optiko-mekhanicheskaya promyshlennost', no. 7, 1966, 11-12

TOPIC TAGS: laser application, nickel plate, metal coating, spectrographic camera

ABSTRACT: Samples tested were 5-15-40 μ chrome plating on brass and three-layer platings of copper (3-20 μ), nickel (3-25 μ), and chromium (1-6 μ) on steel. Also tested were 0.1-4.5 μ layers of vacuum-deposited aluminum on glass. Spectra were taken on panchromatic film with an ISP-28 spectrograph and single laser flashes of 10 joules on neodymium glass. The spectral line intensity of the coatings was found in all cases to depend on the quantity of substance evaporated by the laser flash. Many of the spectral lines exhibit self-reversal, and such lines often are more sensitive to the concentration of substance in the plasma of the flash. The flash spectrum also depends on the location of the focal point of the laser light with respect to the target surface. With chrome-plated brass the self-reversal of the 327.4 and 324.75 mμ copper lines increases linearly as the thickness of the coating increases. Sensitivity

UDC: 543.42 : 621.378.9

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L 40965-66

ACC NR: AP6023366

to coating thickness holds when the beam is focused above the sample surface, and decreases when the beam is focused below. Time scans were also made. Spectra of triple layers on steel are also sensitive to layer thickness. The spectrum of the basis shows no effect of coating thickness. The same holds for aluminum on glass. Orig. art. has: 2 figures. [14]

SUB CODE: 20,11/ SUBM DATE: 08Jul65/ ORIG REF: 005/ ATD PRESS: 5056

Card 2/2

NIKOLAYENKO, A.T.; DOROSHENKO, G.N.; FAYNBERG, G.S.

Selecting flushing methods in boring mine shafts. Ugol' 30 no.11:11-13 N '55. (MLRA 9:2)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii montazha shakhtostroitel'stva.
(Shaft sinking)

F-17-YA-15C/59-71-S.

DOROSHENKO, G.N., inzh.; FAYNBERG, G.S., inzh.

Performance of rock air hoists on clay solutions. Shakht. stroi. no.2:19-22 '58. (MIRA 11:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii shakhtnogo stroitel'stva.
(Air-pump)

FAYNBERG, G. S.

14(5) SOV/112-59-1-1401

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 1, p 193 (USSR)

AUTHOR: Bondarenko, V. G., Faynberg, G. S., and Kaplan, I. A.

TITLE: Device for Remote Checking of the Tension of Hoist Ropes

PERIODICAL: Shakhtnoye str-vo, 1958, Nr 2, pp 28-29

ABSTRACT: A description and data on the DKK-20 device are supplied; the device includes a differential inductive primary element and an AC measuring bridge. The device continuously checks on rope tension and disengages the hoist mechanism when the tension rises above permissible. The device, however, does not stop the hoist mechanism when the object being lowered sticks or when the rope is slack. Three illustrations.

M.R.S.

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FAYNBERG, G.S., inzh.; SMELYANETS, S.G., inzh.; OKUSOK, A.A., inzh.

Planning power supply for mines and pits under construction.
Shakht.stroi. 8 no.1:5-9 Ja '64. (MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii shakhtnogo stroitel'stva.

SMELYANETS, S.G., inzh.; KAPLAN, I.A., inzh.; FAYNBERG, G.S., inzh.; TULUB, P.I., inzh.

Industrial testing of the ONK-10 equipment. Shakht. stroi. 9 no.7:27-28 Jl '65. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii shakhtnogo stroitel'stva.

FAYNBERG, I.

We shall fulfill our pledges in honor of the 22d Congress of the [redacted] of the Soviet Union. Rech. transp. 20 no.10:37-38 O '61. (MIRA 14:9)

1. Zamestitel' nachal'nika planovo-proizvodstvennogo otdela Remontno-ekspluatatsionnoy bazy "Krasnyy flot".
(Inland water transportation)

FAYNBERG, Iosif Fayvishevich; NOVAK, S.Ya., red.; CHEKRYZHOV, V.A., red. izd-va; LELYUKHIN, A.A., tekhn. red.

[Joining new gas pipelines to existing gas networks under pressure] Prisoedineniia novykh gazoprovodov k deistvuiushchim gazovym setiam pod davleniem. Moskva, Izd-vo M-va kommun. khoz. RSFSR, 1962. 97 p. (MIRA 15:7)
(Gas distribution)

85206
S/035/60/000/010/008/021
A001/A001

9.6150

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 10, pp. 22-23, # 9913

AUTHORS: Shklover, D. A., Faynberg, I. S.

TITLE: Cathode-Ray Spectrophotometers

PERIODICAL: Fiz. sb. L'vovsk. un-t, 1958, No. 4 (9), pp. 139-143

TEXT: A spectrophotometer was constructed in which a cathode-ray tube is employed as a recording device. A spectrograph serves as a dispersion device; the exit slit is mounted in the plane of the spectrograph plates. The exit slit, together with the receiver, slides along a special carriage. All this is mechanically connected with the slide of a variable resistance switched in a rheostat circuit. The output voltage is described by the expression:

$$u = E\left[1 - R_2/(R_2 + R_1 - r)\right].$$

This relation coincides with Hartmann's formula in its form. Making use of this coincidence, it is easy to obtain the linear dependence of the wavelength scale,

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8 5206
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A001/A001

Cathode-Ray Spectrophotometers

switching this voltage to the horizontal plates of an oscillograph. Spectrum is recorded in 10 - 30 sec. A photomultiplier serves as a receiver.

O. Dmitriyevskiy

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

FAYNBERG, L.A.

Introducing practical training in the schools of Taymyr Peninsula. Let. Sev. 3:90-91 '62. (MIRA 15:8)

1. Institut etnografii AN SSSR.
(Taymyr Peninsula—Technical education)

[redacted], L. A.

"Iz istorii obshchestvennogo stroya eskimosov i aleutov."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences, Moscow, 3-10 Aug 64.

S/133/62/000/008/001/003
A054/A127

AUTHORS: Medvedev, G.A.; Faynberg, L.B.; - Engineers; Mel'tser, V.V., Candidate of Technical Sciences

TITLE: The effect of the hot-rolling technology on the properties of sheets for deep drawing

PERIODICAL: Stal', no. 8, 1962, 732 - 737

TEXT: Hot rolled 08 кп (08kp) and 10 кп (10kp) sheets should be suitable for deep drawing without having to undergo additional heat treatment. The properties and, especially, relative elongation of sheets depend to a great extent on the grain size which, in turn, is affected by the temperature at the end of rolling and during coiling of the strips. The effect of the first factor on the grain size was studied on the 1450 mill of the Magnitogorskiy metallurgicheskiy kombinat (Magnitogorsk Metallurgical Combine) with samples of 08 кп ВГ (08kpVG) car sheets, 2.5 - 3.0 мм thick, at various temperatures and specific reduction on the last stand of 6 - 9% and with intensive water-spray cooling. Raising the temperature at the end of rolling from 800 to 880°C gradually increases the

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The effect of the hot-rolling technology on ....

yield of flawless sheets to grain size from 52.3 to 100%. A higher end temperature of rolling also improved the mechanical characteristics, including relative elongation. However, the required end temperature of 880 - 890°C for sheets 2 - 2.5 mm thick is difficult to obtain. Therefore, other factors also affecting the grain size (cooling and reduction) have to be taken into consideration as well. Grain growth can be checked by intense cooling prior to coiling the strips. Cooling the strips by intense water spraying will also promote the removal of cinder during pickling. Tests carried out on the 1680 mill of the zavod "Zaporozhstal'" ("Zaporozhstal' Plant) yielded an optimum temperature range of 620 - 650°C for the strip prior to coiling. With such intensive cooling the grain structure of the sheet will be homogeneous over its entire cross section, whereas insufficient cooling causes the larger grains to concentrate at the surface and the smaller ones in the center of the cross section. The third factor greatly affecting the grain size is the degree of reduction on the last stand. Adequate tests were carried out with 08kpVG sheets 2 mm thick. At approximately identical rolling temperatures the most homogeneous grain structure and a higher value of relative elongation were obtained when the reduction on the last stand was increased to 16 - 18%. In this case, relative elongation over the entire

The effect of the hot-rolling technology on ....

length of the strip was above 30%, while at reductions of 8.5% this parameter did not even come up to the standard. Higher reductions, however, increase the risk of warping. This can be prevented by ensuring the right convexity of the work rolls, by cooling the roll barrels lengthwise and by frequently changing the finishing stand. All three factors determining the grain size must be applied in combination. If, for instance, only the reductions are increased to 13 - - 13.5% while the end temperature of rolling is not raised above 820 - 840°C and water-spray cooling is not effective enough, a large-sized grain structure and a low value of relative elongation will be the result. Optimum conditions are obtained with an end temperature of rolling of 840 - 900°C beyond the last stand (i.e., 865 - 925°C at the beginning of the process), a temperature of 650°C during coiling and a reduction on the last stand of 15 - 17%. Cooling can be intensified by increasing the spraying surface of the cooling installation and the water pressure. The tests were carried out in cooperation with G.V. Mezentsev, A. Gabbasova and A.N. Tupikina. There are 5 figures and 2 tables.

ASSOCIATION: Magnitogorskiy metallurgicheskiy kombinat (Magnitogorsk Metallurgical Combine)

FAYZULLIN, V.Kh.; MEL'TSER, V.V.; GALEYEV, I.; FAYNBERG, L.B.; MIROSHNIKOV, I.K.

Effect of the initial shape of working rolls of continuous mill finishing stands on the shape of the rolled strip section. Stal' 23 no.7:624-627 Jl '63. (MIRA 16:9)
(Rolling (Metalwoork)) (Rolls (Iron mills))

FAYNBERG, L.D.

New design of charge mixture distributor for a blast furnace. Met. i gornorud. prom. no.3:10-11 My-Je '65.
(MIRA 18:11)

OVCHARENKO, Ye.Ya.; KOTIK, U.I.; FAYNBERG, L.I.

The PR-150 noncontact radioactive densimeter. Sbor.mat.po avtom. proizv.prots.i disp. no.5:5-18 '60. (MIRA 14:4)

1. Konstruktorskoye byuro "TSvetmetavtomatika".

(Radioactive substances--Industrial applications)
(Electronic instruments)

FAYNBERG, L. I., KOTIK, I. I., and SEMEBRENNIKOVA, I. Ya.

"Radioactive Densimeter for Liquids and Pulps"

paper presented at the All-Union Seminar on the Application of Radioactive Isotopes in Measurements and Instrument Building, Frunze (Kirgiz SSR), June 1961)

So: Atomnaya Energiya, Vol 11, No 5, Nov 61, pp 468-470

BELKINA, G.L.; KUROYEDOV, V.A.; LAPOVOK, V.I.; LIKHTEROV, I.M.; MERMEL'SHTEYN, G.R.; OVCHARENKO, Ye.Ya.; PONOMAR', V.I.; SABAYEV, V.I.; SOTNIKOV, V.A.; FAYNBERG, L.I.; FEOKTISTOVA, N.D.

X-ray spectral analysis of brass in the process of smelting. Zav.lab. 31 no.4:427-428 '65. (MIRA 18:12)

1. Konstruktorskoye byuro "TSvetmetavtomatika" i Artemovskiy zavod tsvetnykh metallov im. E.I.Kviringa.

BAGIROV, B.G., kand.med.nauk (Ashkhabad); CHEBANOV, Yu.D., aspirant (Ashkhabad); FAYNBERG, L.P., inzh. (Ashkhabad)

Results of testing under actual conditions the Kd A-55 home evaporative cooling air conditioner. Vod. i san. tekh. no.9:26-28 '62. (MIRA 15:12)
(Soviet Central Asia—Air conditioning)

NATSENTOV, D.I., kand.sel'skokh.nauk.; VASHCHENKO, S.F., kand.sel'skokh. nauk; NIKONOVA, N.A., kand. sel'skokh. nauk; CHEKUNOVA, Z.I., kand. sel'skokh. nauk; FAYNBERG, L.S., nauchnyy sotrudnik; GAVRIL'YEV, I.G., aspirant; VASIL'YEVA, Ye., red.; POKHLEBKINA, M., tekhn. red.

[Advanced practices for vegetable growing under glass] Peredovoi opyt ovoshchevodov zashchishchennogo grunta. Moskva, Mosk. rabochii, 1962. 102 p. (MIRA 16:6)

1. Sotrudniki Nauchno-issledovatel'skogo instituta ovoshchnogo khozyaystva (for all except Vasil'yeva, Pokhlebkina).
(Moscow Province--Vegetable gardening)
(Greenhouse management)

FAYNBERG, M.G.

Unusual complication of lumber puncture. Zhur.nevr. i psikh.55 no.8:615-616 '55. (MLRA 8:10)

1. Nevrologicheskoye otdeleniye 6-y bol'nitsy Voroshilovgrada.
(SPINAL PUNCTURE,
lumber, compl.)

FAYNBERG, M.G.

Problems in organizing psychoneurological services in a large industrial enterprise. Zhur.nevr. i psikh. Supplement:51-52 '57. (MIRA 11:1)

1. Nevrologicheskoye otdeleniye (zav. M.G.Faynberg) 6-y bol'nitsy i meditsinsko-sanitarnaya chast' parovozostroitel'nogo zavoda imeni Oktyabr'skoy revolyutsii, Voroshilovgrad.
(MEDICINE, INDUSTRIAL) (NEUROLOGY)

FAYNBERG, M.O. (Voroshilovgrad)

Leukemoid reaction in serous meningitis. Klin.med. 35 [i.e.34] no.1 Supplement:46-47 Ja '57. (MIRA 11:2)

1. Iz nevrologicheskogo otdeleniya 6-y gorodskoy bol'nitsy.
(MENINGITIS) (BLOOD--DISEASES)

FAYNBERG, M.G.

Clinical aspects of slight cerebrocranial trauma without loss of consciousness. Vop.neirokhir. 22 no.2:37-38 M-Ap '58. (MIRA 11:4)

1. Nevrologicheskoye otdeleniye 6-y bol'nitsy Voroshilovgrada.
(BRAIN, wounds and inj.
slight cerebrocranial inj. without loss of consciousness
(Rus)

FAYNBERG, M.G. (Khar'kov)

Clinical morphological characteristics of tumors of the lamina quadrigemina. Vop.neirokhir. 23 no.5:11-17 S-O '59. (MIRA 12:11)

1. Otdel nevrologii i laboratoriya patomorfologii Ukrainskogo nauchno-issledovatel'skogo psikhonevrologicheskogo instituta.
(BRAIN neoplasms)

FAYNBERG, M.G.

Clinical, pathogenic, and preventive data on occupational diseases of the nervous system in air-hammer workers [with summary in English]. Gig. i san. 24 no.1:35-40 Ja '59. (MIRA 12:2)

1. Iz nevrologicheskogo otdeleniya 6-y bol'nitsy i mediko-sanitarnoy chasti Luganskogo parovozostroitel'nogo zavoda imeni Oktyabrskoy revolyutsii.

(NERVOUS SYSTEM, dis.
occup., caoused by air hammer vibrations (Rus))
(OCCUPATIONAL DISEASES,
NS dis. caused by air hammer vibrations (Rus))
(VIBRATIONS, inj. eff.
same)

FAYNBERG, M.G.

Clinical aspects and morphology of tumors of the lamina quadrigemina. Zhur.nerv.i psikh. 59 no.9:1042-1048 '59. (MIRA 12:11)

1. Otdel nevrologii (zav. - prof. L.B. Litvak) i laboratoriya patomorfologii (zav. Kh.N. Zil'bershteyn) Ukrainskogo nauchno-issledovatel'skogo psikhonevrologicheskogo instituta (dir. P.I. Kovalenko), Khar'kov.

(BRAIN neoplasms)

FAYNBERG, M. G., Cand Med Sci -- "Pathology of the lamina quadrigemina in cerebral tumors. (In clinical morphological interpretation)," Khar'kov, 1960 (Khar'kov State Med Inst). (KL, 1-61, 211)

FAYNBERG, M.G.

Clinical aspects of acute disorders of the circulation in the brain stem. Vrach. delo no.9:71-74 S '61. (MIRA 14:12)

1. Nevrologicheskoye otdeleniye (zav. - M.G.Faynberg) Khar'kovskoy 11-oy klinicheskoy bol'nitsy. Nauchnyy rukovoditel' - zasluzhennyy deyatel' nauki, prof. L.B.Litvak.
(CEREBROVASCULAR DISEASES)

FAYNBERG, M.G. (Khar'kov)

Clinical characteristics of nervous system lesions in myocardial infarction. Klin.med. no.9:63-67 '62. (MIRA 15:12)

1. Iz nevrologicheskogo otdeleniya (zav. M.G. Faynberg) 11-y khar'kovskoy klinicheskoy bol'nitsy (glavnyy vrach Ye.D. Gushelya).
(HEART—INFARCTION) (NERVOUS SYSTEM—DISEASES)

FAYNBERG, M.G., kand. med. nauk (Khar'kov)

Clinical aspects of lesions of the peripheral nervous system in tuberculosis. Vrach. delo no.10:57-61 O '63.
(MIRA 17:2)

1. Nevrologicheskoye otdeleniye 11-y Khar'kovskoy klinicheskoy bol'nitsy i 1-y protivotuberkuleznyy dispanser, Khar'kov.

FAYNBERG, M.Yu., inzhener.

Economical way of starting direct-current multiple-motor electric drives. Bum.prom. 31 no.10:11-13 O '56. (MLRA 10:1)
(Electric motors--Starting devices)

FAYNBERG, M.Yu.

Foreign systems for controlling the speed of motors of continuous operation high-speed cold rolling lathes. Prom.energ. 12 no.6:29-31 Je '57. (MIRA 10:7)
(Metalworking machinery) (Automatic control)

FAYNBERG, M.Yu.

Eliminating the variation in thickness due to the effect of the speed of rolling. Met. i gornorud. prom. no.5:40-42 S-O '64.
(MIRA 18:7)

L 01295-67 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) BC

ACC NR: AP6015032 (A) SOURCE CODE: UR/0144/66/000/004/0437/0442

AUTHOR: Faynberg, M. Yu.

ORG: none

TITLE: Efficient compensation of dynamic errors in speed-regulation automatic systems

SOURCE: IVUZ. Elektromekhanika, no. 4, 1966, 437-442

TOPIC TAGS: automatic control, automatic control system, automatic control theory, dc motor, rolling mill

ABSTRACT: Differential elements in speed-regulating systems may cause extension of transient processes and even false signals. Hence, a compensating device is suggested which detects the accelerating signal according to its sign and proportions the signal duration (a block diagram is explained). The device was tested on an experimental outfit which included a d-c motor supplied by a d-c generator whose field was fed by a dynamoelectric amplifier. Performance oscillograms show that the compensation device reduces the dynamic speed drop, during a transient, from 1.053 revolutions to 0.56 rev. Hence, a "considerable improvement in the regulation process" is claimed. Orig. art. has: 5 figures and 6 formulas.

SUB CODE: 13, 09 / SUBM DATE: 16Sep64 / ORIG REF: 003

Card 1/1 LC UDC: 62-501+62-55

FAYNBERG, N., inzh.

A new kind of oat groats. Muk.-elev. prom. 27 no.4:17 Ap '61.
(MIRA 14:7)

1. Syzranskoye mel'zavodoupravleniye No.1.
(Oat milling)

FAYNBERG, N. V.

Faynberg, N. V. "On the problem of investigating the condition of the horny layer of the skin by the method of determining the pain time and electrodermal sensitivity," Eksperim. i klinich. issledovaniya (Leningr. kozhno-venerol. in-t.), Vol. VII, 1949, p. 191-93.

SO: U-3736, 21 May 53, (Letopis 'Zhurnal 'nykh Statey, No. 17, 1949).

5(1, 3) SOV/153-58-5-19/28

AUTHORS: Gul', V. Ye., Faynberg, R. Ya., Mayzel's, M. G., Rayevskiy, V. G., Sin'kova, M. I.

TITLE: I. Physico-Chemical Characteristics of the Wetting Process of Textile Materials With Solutions of High-Molecular Compounds (I. Fiziko-khimicheskiye kharakteristiki protsessov smachivaniya tekstil'nykh materialov rastvorami vysokomolekulyarnykh soyedineniy)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 5, pp 114-119 (USSR)

ABSTRACT: The mechanism of the interactions of the processes mentioned in the title is of scientific and practical interest. The application of rubber glues on a textile basis in the production of gummed tissues can serve as example. As the wetting represents the first elementary interaction process therein, it can exert essential influence on the characteristics of adhesion. The dependence of the wetting upon the nature and the structure of the glues and the textile materials must therefore be studied. Apparently the value Θ cannot supply any clear characteristic feature of the adhesion to textiles in the case of glue (just as with latex, Refs 1, 2). On the other hand, the authors re-

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I. Physico-Chemical Characteristics of the Wetting Process of Textile Materials With Solutions of High-Molecular Compounds

garded it as possible to determine such a characteristic feature by studying the variation kinetics of the angle θ with respect to time. For this purpose they selected the method of the indirect measurement of the external angle θ of the wetting on an enlarged picture of the drop projected unto a screen. It could be proved that 1) the variation character of the curves of the said angle reflects the totality of the processes taking place during the interaction of the glue with the cloth; these processes are the soaking and the evaporation in a room saturated with evaporated solvents (Figs 1, 4) besides these processes in an unsaturated room (Figs 3, 5); 2) It was proved that the residual values of θ increase with the viscosity of the glue, whereas the total velocity of the processes, soaking and deliquescence, decrease. 3) The kinetic parameter τ_{max} was determined; it is the period of time within which the drop has reached a stable state. This parameter is a criterion of the degree of susceptibility of various textiles to rubber glue (cotton - perkal' B, caprone art. 1516 and 1520, glass cloth

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I. Physico-Chemical Characteristics of the Wetting Process of Textile Materials With Solutions of High-Molecular Compounds

ESTBO 11) 4) Inspite of the decrease in viscosity η and of the surface tension σ the addition of polar admixtures slows down the decrease of the external angle with time and increases the value of τ_{max}. 5) The adhesion characteristics of the glue-tissue systems investigated were determined. They are in good correlation with the wetting parameters θ and τ_{max}. 6) It was found possible to predetermine the interaction character of the glue with the textile base as well as the binding strength of these elements in finished constructions of gummed cloths by means of the degree and the variation character of the parameters θ and τ_{max}. There are 8 figures, 3 tables, and 6 Soviet references.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii i nauchno issledovatel'skiy institut rezinovoy promyshlennosti (Moscow Institute for Fine Chemical Technology and Scientific Research Institute for Rubber Industry)

SUBMITTED: December 2, 1957

5(1,3)

AUTHORS: Gul', V. Ye., Faynberg, R. Ya., Maysel's, M. G., Rayevskiy, V. G.

SOV/153-2-2-24/31

TITLE: Physico-chemical Characteristics of the Interaction Processes of Polymer Materials With Solutions of High-molecular Compounds (Fiziko-khimicheskiye kharakteristiki protsessov vzaimodeystviya polimernykh materialov s rastvorami vysokomolekulyarnykh soyedineniy). II. On the Effect of the Nature of Textile Materials on Their Interaction With Rubber Glues (II. Vliyaniye prirody tekstil'nykh materialov na ikh vzaimodeystviye s rezinovymi kleyami)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 2, pp 270-273 (USSR)

ABSTRACT: The application of a rubber-glue-coating on a textile layer, during the production of rubber-impregnated textiles, forms a practical example for the interaction mentioned in the title. The total impression of the kinetic curves which characterize the change of the boundary-angle θ with the time, reflects the totality of the processes between the rubber-glue (= latex dissolved in petrol), which occur between this glue, and the textile base (Ref 1). The

character of this interaction can be predicted, and the relative strength of their bonding can further be estimated from the degree and character of the change of the kinetic parameters θ and τ_{max}. In spite of the slight adhesion of several types of artificial fibres (polyamide-, glass-, viscose-fibres) in relation to the rubber coatings, the use of textile fibres on this base is often very appropriate. Their advantages are among others: high mechanical indices, resistance against aging, good rot-preventing properties. Apparently it is possible, by combining fibres of varying chemical nature, to produce textiles which have the required complex of technical properties. The following combined textiles were investigated: a) glass-cotton, b) glass-kapron, and c) glass-viscose fibre. The following compositions served as a glue: (parts by weight) rubber 100, sulphur 4, magnesium-oxide 5, neozone D 1 part. The wetting processes were estimated by direct measurement of the boundary angle on an

enlarged photography of the drop (Ref 1). The τ_{max} values were determined on stationary sectors of the transformation curves of the wetting angle in connection with the time. On the basis of the results, the authors arrive at the following conclusions: 1) By building-up textile materials from fibres of various chemical nature, it is possible to alter the wetting-characteristics through rubber-glues in a required direction. 2) The introduction of cotton-fibres in textiles of synthetic or artificial fibres (glass-, polyamide-, viscose-, and other fibres) enables improving their wetting-property considerably (Figs 1-3). 3) The investigated textiles are placed in the following order, according to the reaction-intensity with rubber glues, as well as to the τ_{max} values: glass-cotton > glass-kapron > glass-viscose. For the τ_{max} value, this order is valid for all viscosity values. 4) For combined textiles or those which consist of a single type of fibre, the impregnation-spilling processes develop

more intensively in a space saturated by the solvent. 5) The viscosity-increase of the glue slows down the processes mentioned under Nr 4. 6) The higher the glue-viscosity, the higher the range of the values of the wetting angle of the respective materials. 7) The τ_{max} value (the time interval within which the system textile-glue attains a quasi-equilibrium state) is determined by the nature of the fibre of the combined textile. There are 3 figures, 1 table, and 1 Soviet reference.

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(MIRA 11:1)

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(Grain-milling machinery)

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1. Glavnyy inzhener Chernovitskoy mel'nitsy No.3.
(Bukovina—Flour mills) (Pneumatic conveying)

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They substituted belt conveyors for screw conveyors. Muk.-elev. prom. 28 no.10:27-28 O '62. (MIRA 16:1)

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(Chernovitsy--Flour mills--Equipment and supplies)
(Conveying machinery)